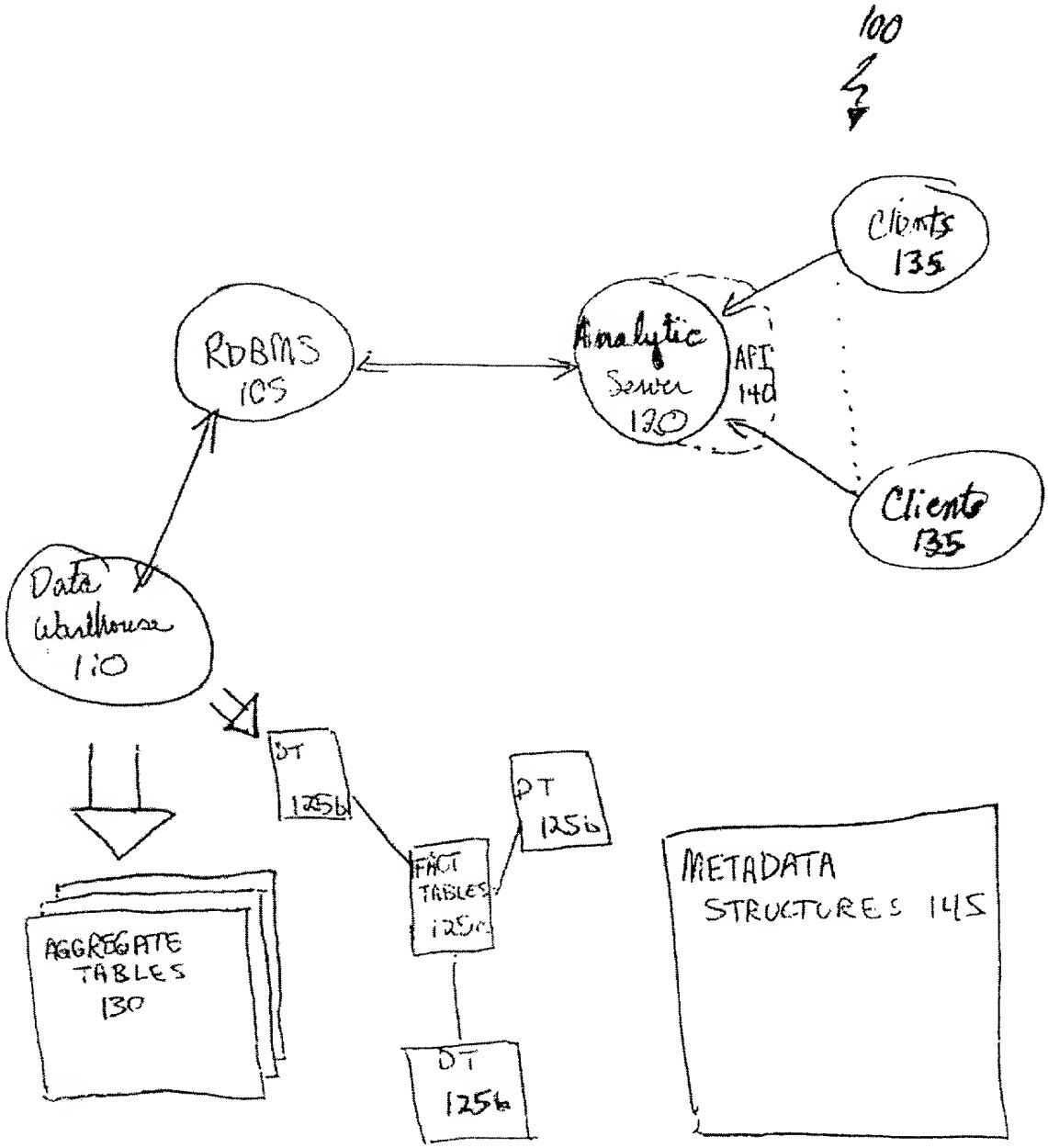

FIGURE 1

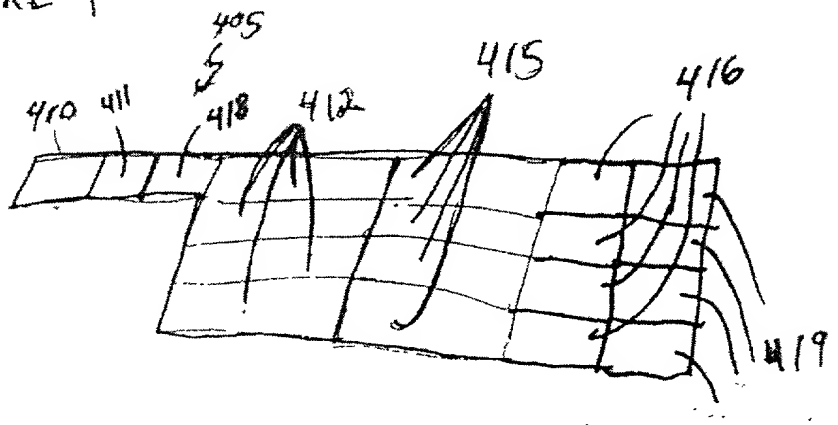

FIGURE 4

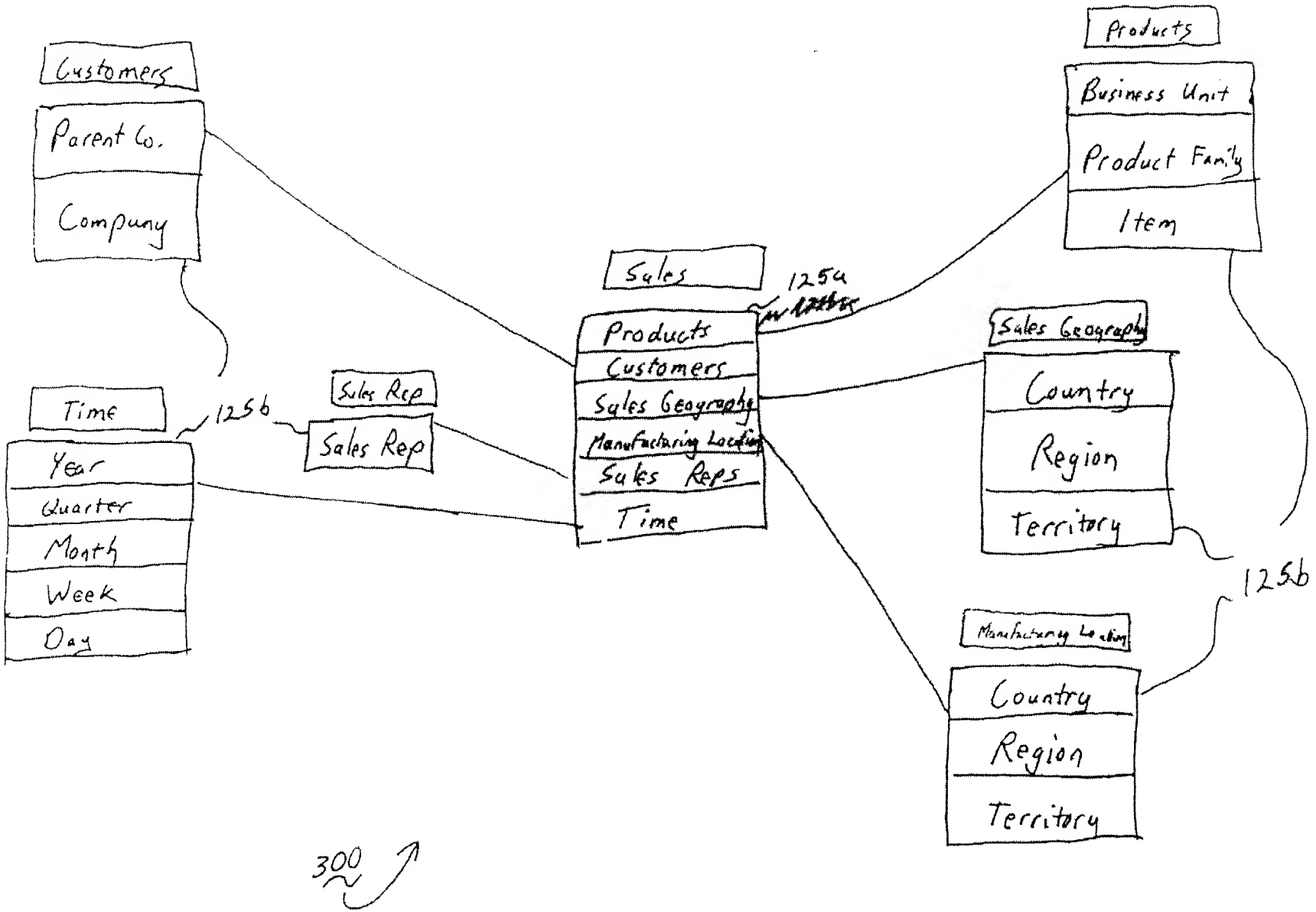
Customers
Parent Co.
Company
Products
Business Unit
Product Family
Item
Sales
Products
Customers
Sales Geography
Manufacturing Location
Sales Reps
Time
125a
Sales Geography
Country
Region
Territory
Time
Year
Quarter
Month
Week
Day
125b
Sales Rep
Sales Rep
125b
Manufacturing Location
Country
Region
Territory
300

FIGURE 3A

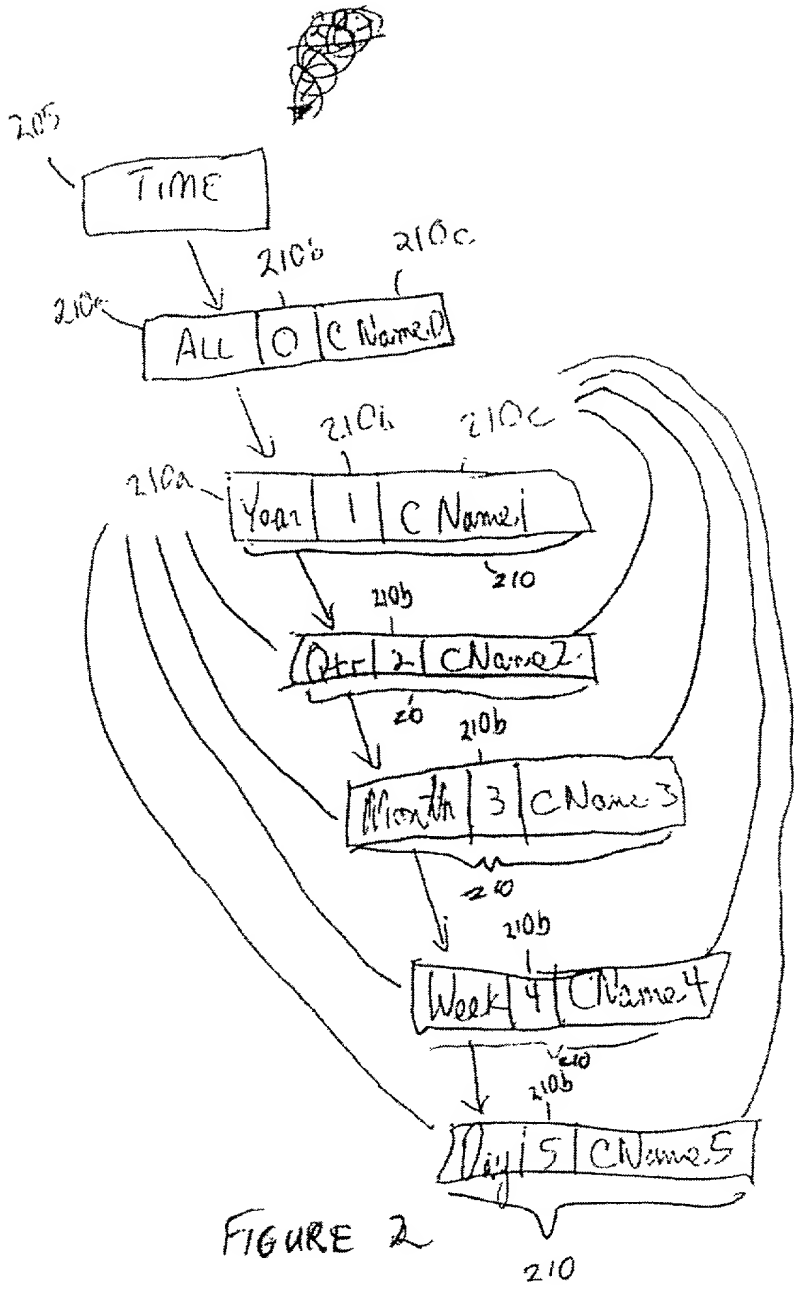

FIGURE 2

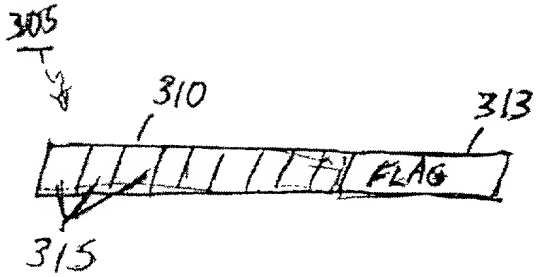

FIGURE 3A

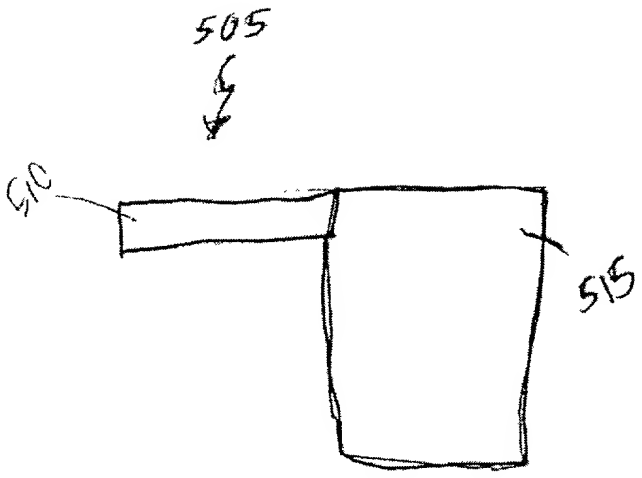

FIGURE 5

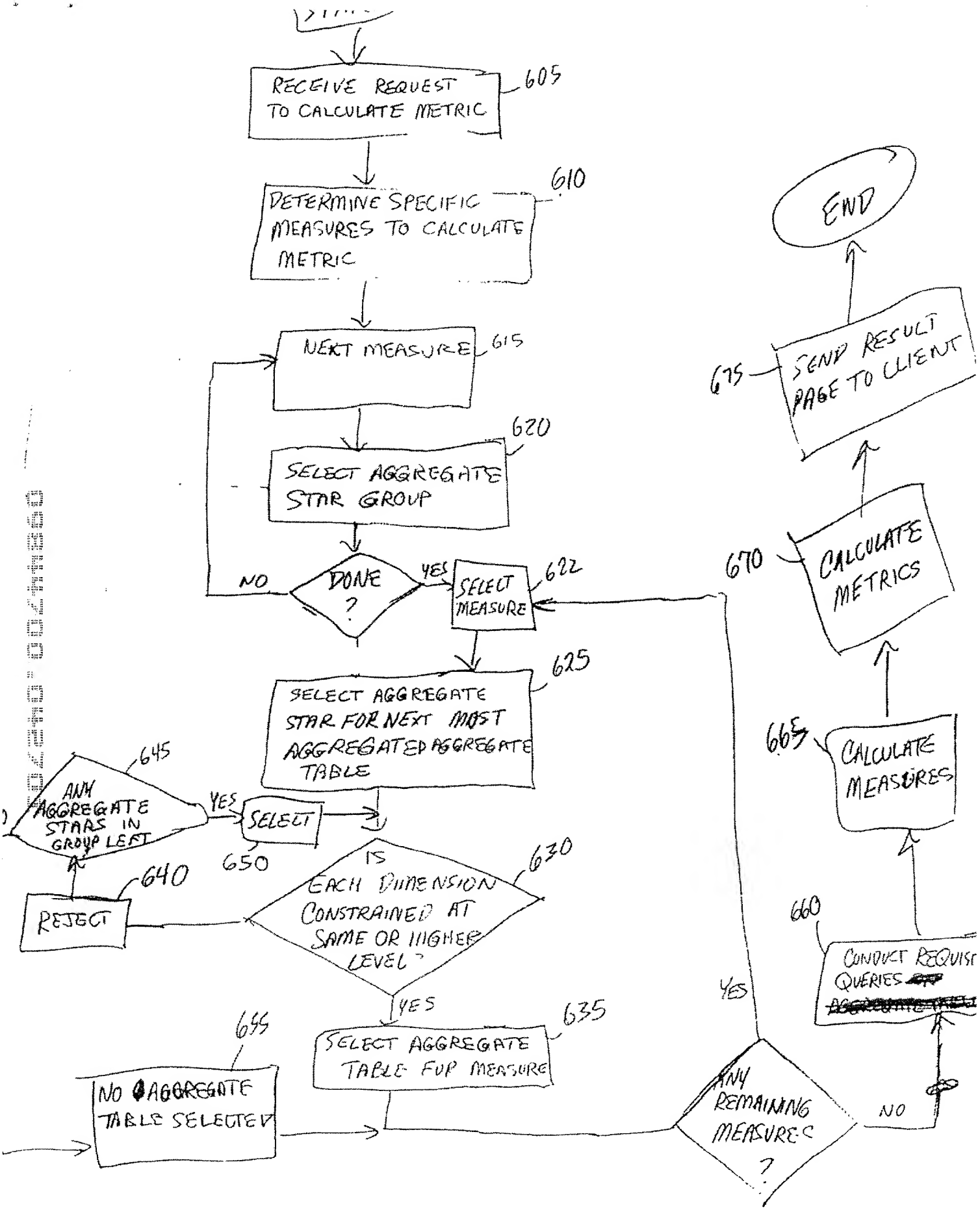
RECEIVE REQUEST TO CALCULATE METRIC
605
DETERMINE SPECIFIC MEASURES TO CALCULATE METRIC
610
NEXT MEASURE
615
SELECT AGGREGATE STAR GROUP
620
DONE ?
NO
YES
SELECT MEASURE
622
SELECT AGGREGATE STAR FOR NEXT MOST AGGREGATED AGGREGATE TABLE
625
ANY AGGREGATE STARS IN GROUP LEFT
645
YES
SELECT
650
REJECT
640
IS EACH DIMENSION CONSTRAINED AT SAME OR HIGHER LEVEL ?
630
YES
SELECT AGGREGATE TABLE FOR MEASURE
635
NO AGGREGATE TABLE SELECTED
655
ANY REMAINING MEASURES ?
YES
NO
CONDUCT REQUIST QUERIES
660
CALCULATE MEASURES
665
CALCULATE METRICS
670
SEND RESULT PAGE TO CLIENT
675
END

FIGURE 6

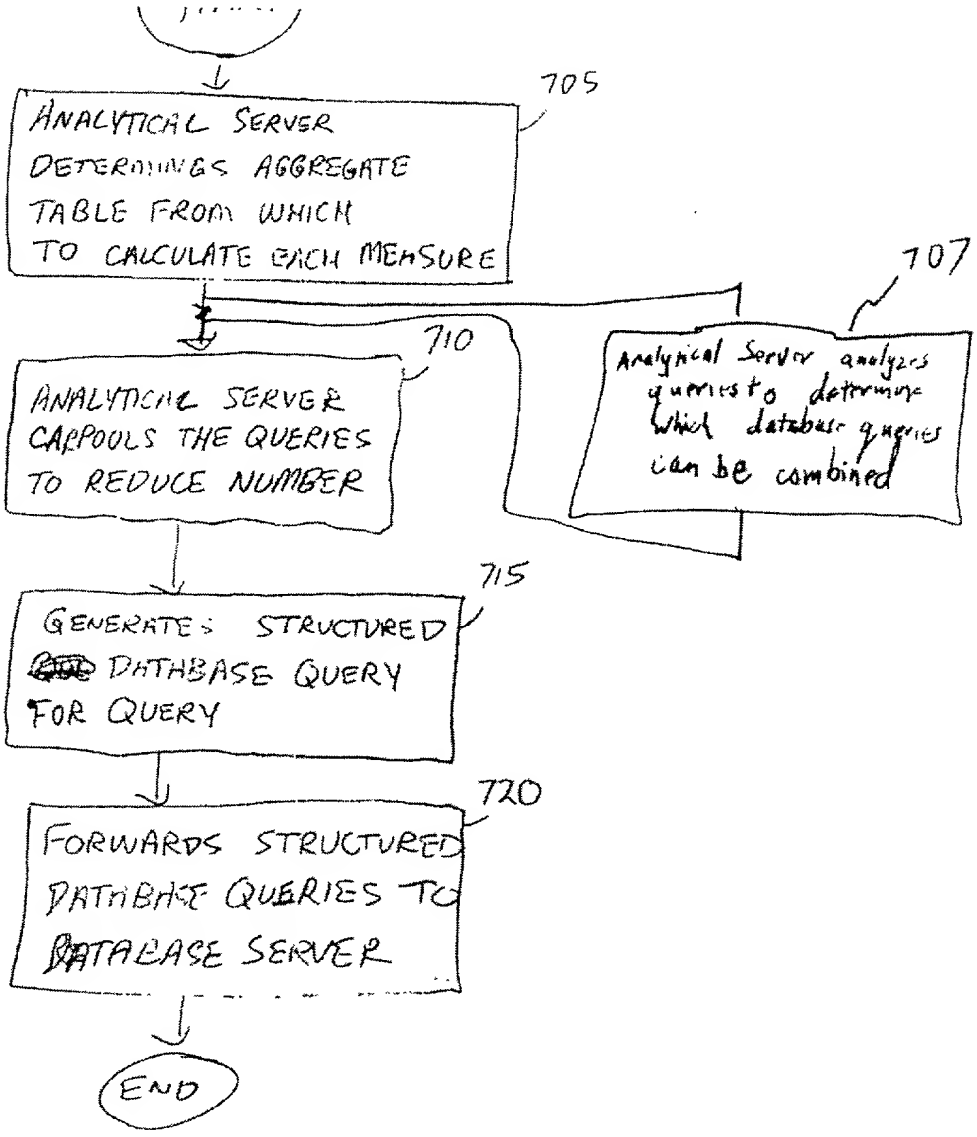
705
ANALYTICAL SERVER DETERMINES AGGREGATE TABLE FROM WHICH TO CALCULATE EACH MEASURE
707
Analytical Server analyzes queries to determine which database queries can be combined
710
ANALYTICAL SERVER CARPOOLS THE QUERIES TO REDUCE NUMBER
715
GENERATES STRUCTURED DATABASE QUERY FOR QUERY
720
FORWARDS STRUCTURED DATABASE QUERIES TO DATABASE SERVER
END

FIG. 7

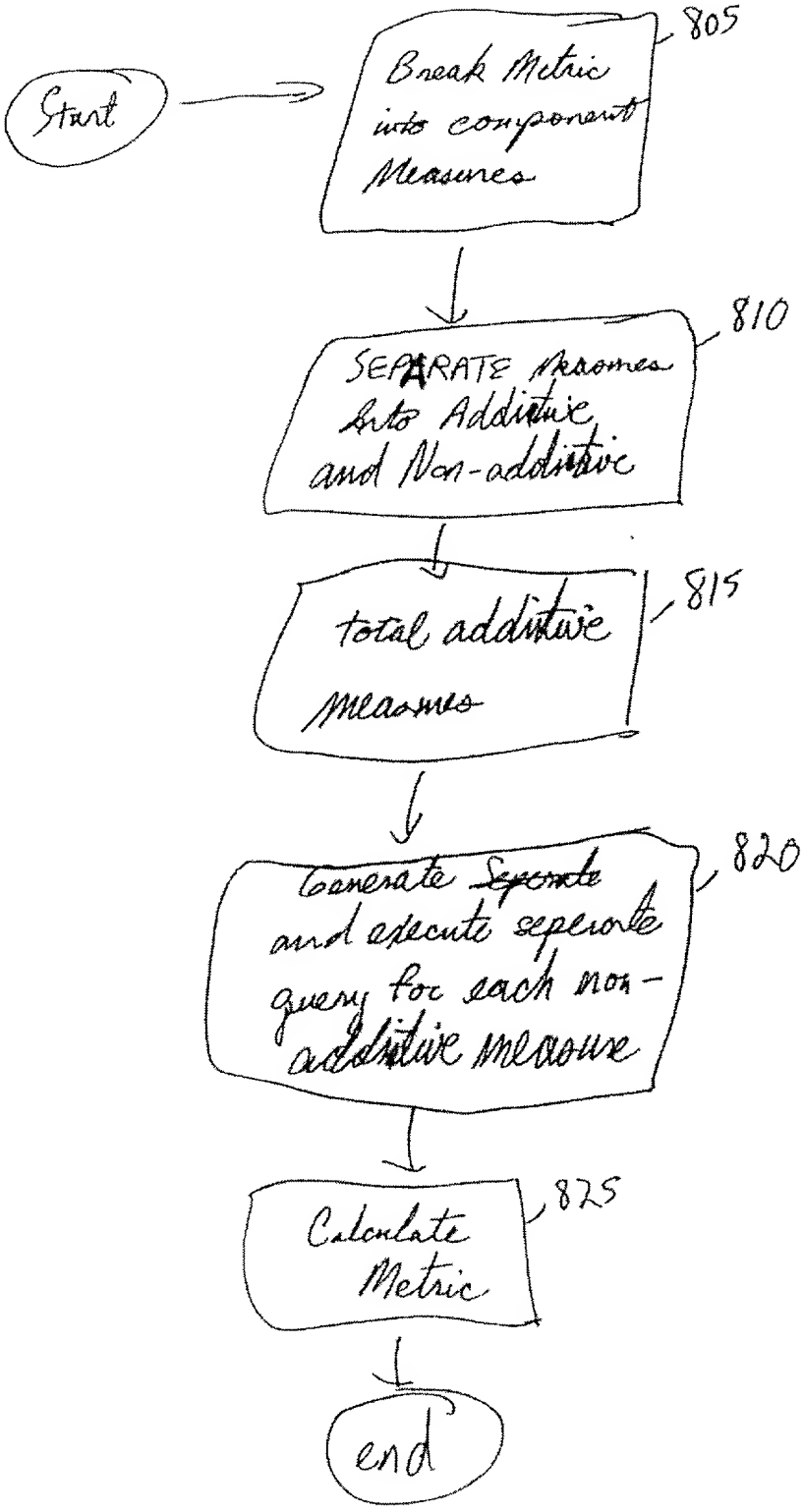
Start
Break Metric into component Measures
805
SEPARATE Measures into Additive and Non-additive
810
total additive measures
815
Generate and execute seperate query for each non-additive measure
820
Calculate Metric
825
end

FIGURE 8

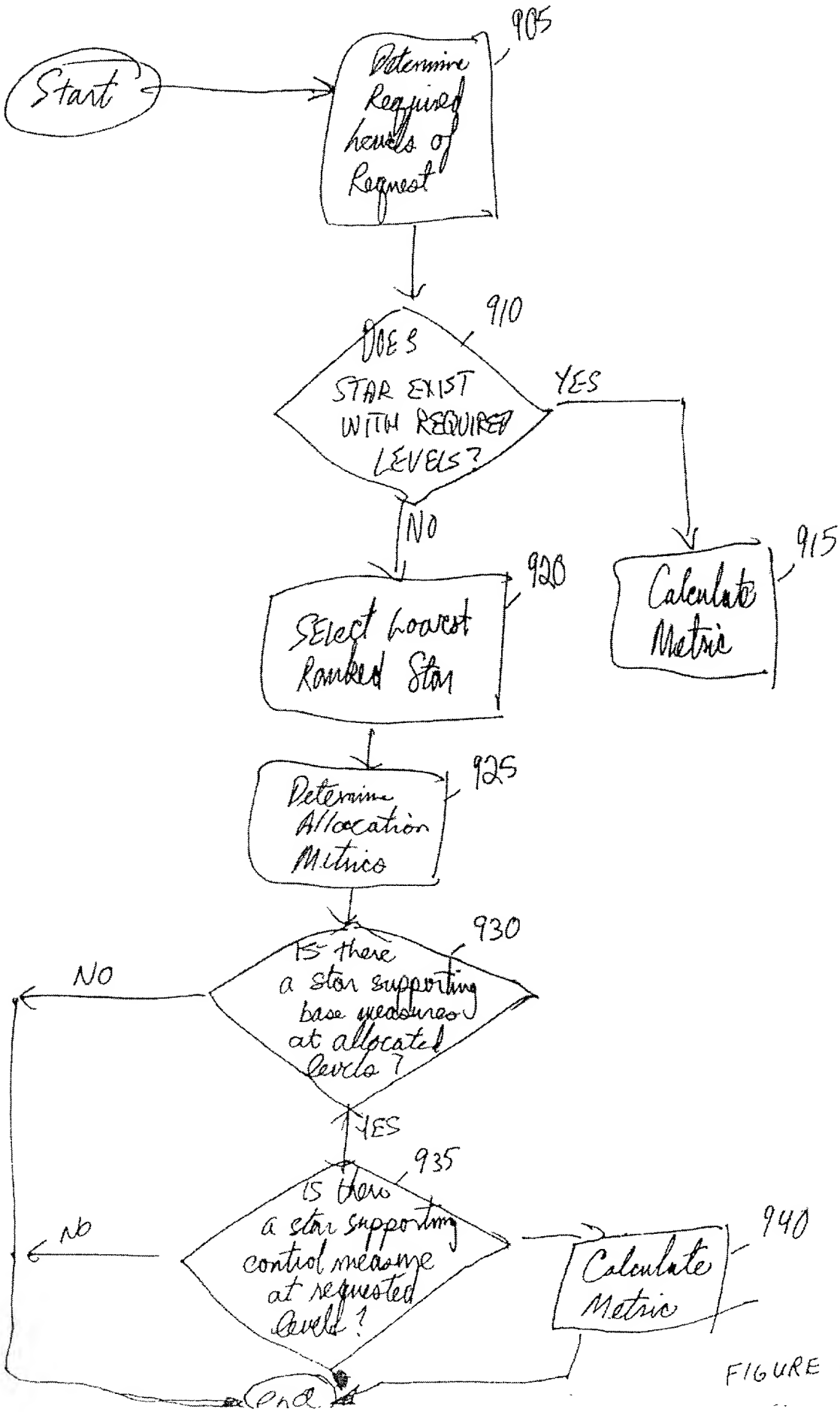
Start
905
Determine Required levels of Request
910
DOES STAR EXIST WITH REQUIRED LEVELS?
YES
NO
915
Calculate Metric
920
SElect Lowest Ranked Star
925
Determine Allocation Metrics
930
IS there a star supporting base measures at allocated levels?
NO
YES
935
IS there a star supporting control measure at requested level?
NO
940
Calculate Metric
End

FIGURE 9

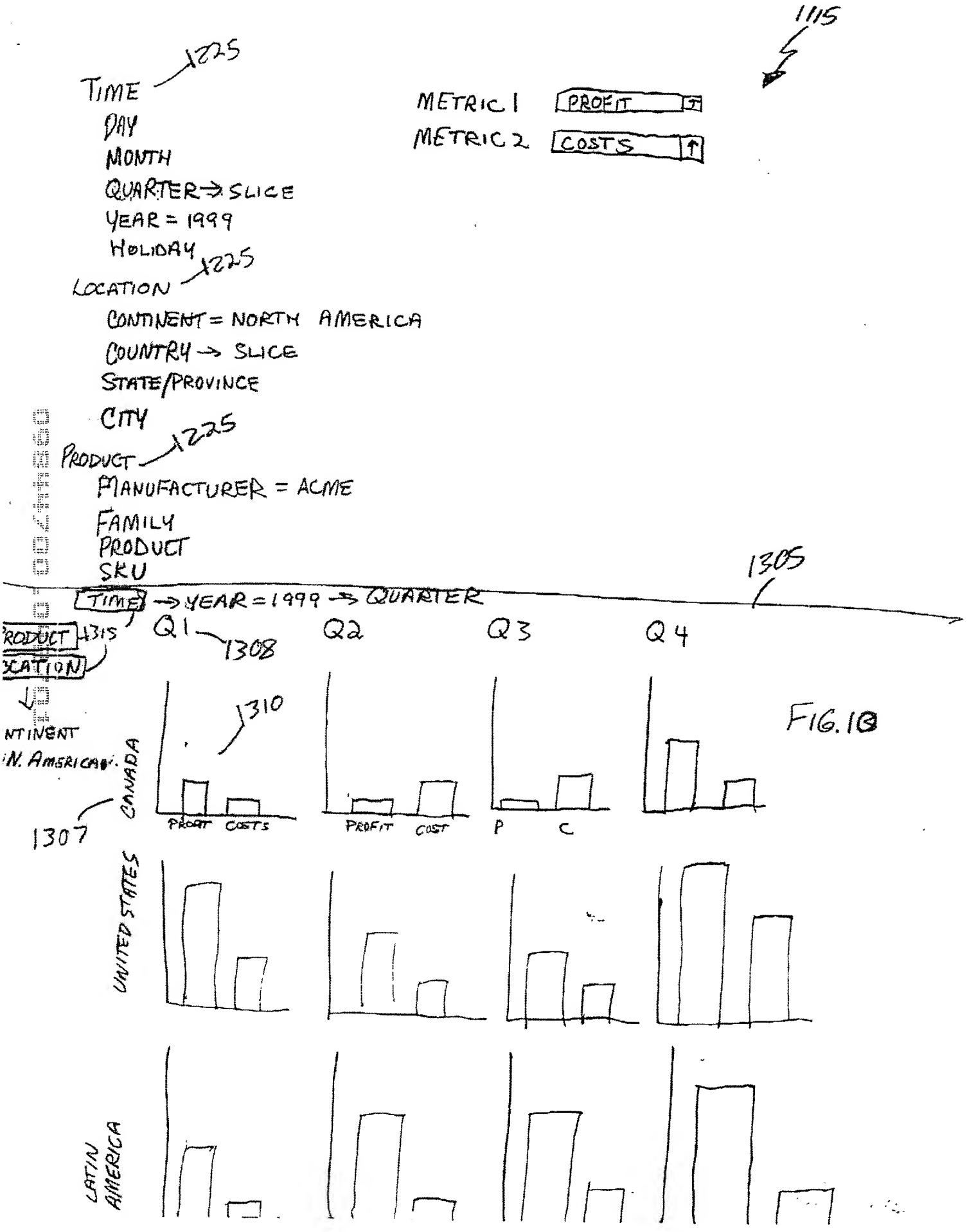
1115
1225
TIME
DAY
MONTH
QUARTER → SLICE
YEAR = 1999
HOLIDAY
1225
LOCATION
CONTINENT = NORTH AMERICA
COUNTRY → SLICE
STATE/PROVINCE
CITY
1225
PRODUCT
MANUFACTURER = ACME
FAMILY
PRODUCT
SKU
METRIC 1
PROFIT
METRIC 2
COSTS
1305
TIME → YEAR = 1999 → QUARTER
Q1
1308
Q2
Q3
Q4
1315
1310
CANADA
PROFIT
COSTS
PROFIT
COST
P
C
1307
UNITED STATES
LATIN AMERICA

FIG. 13

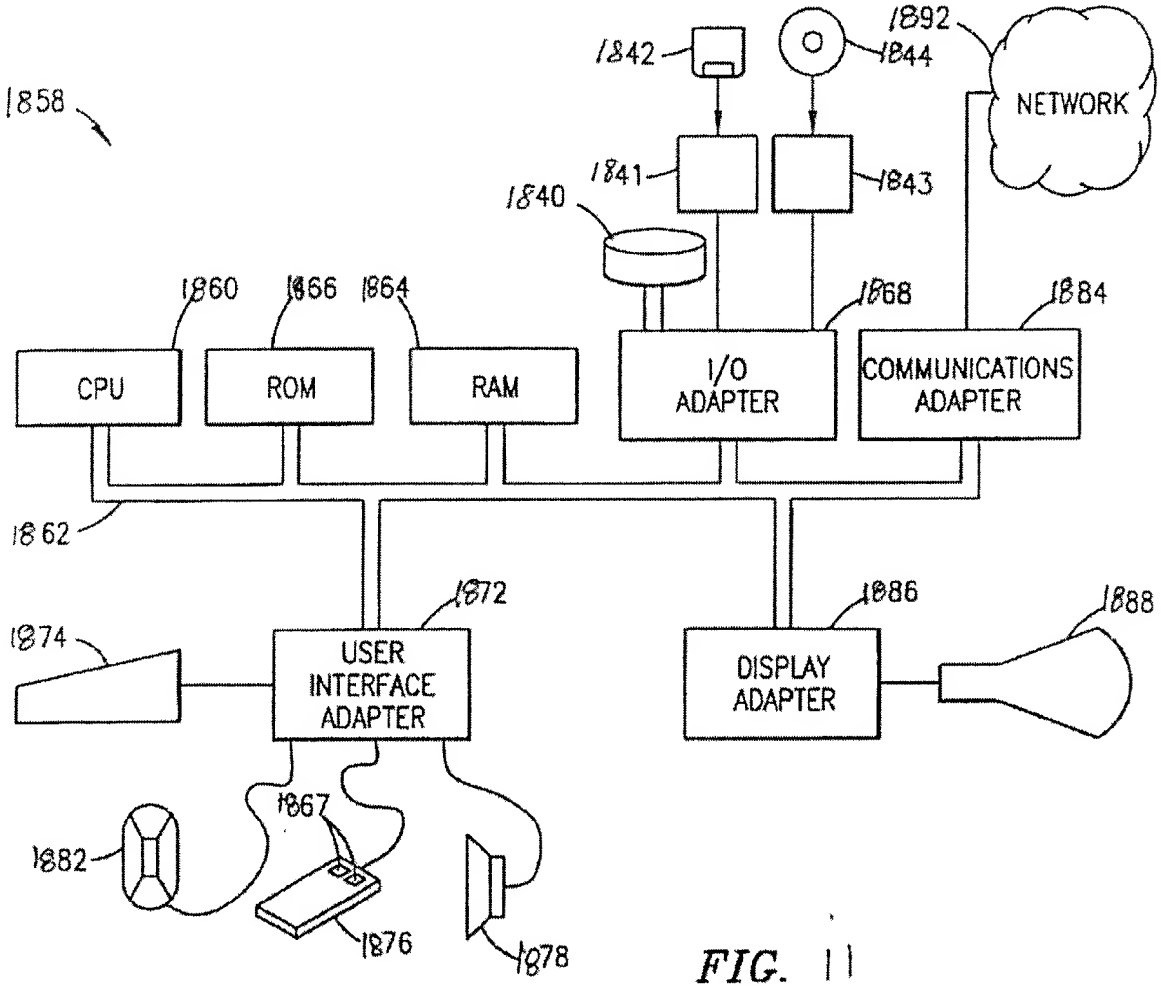
1858
1842
1844
1892
NETWORK
1841
1843
1840
1860
1866
1864
1868
1884
CPU
ROM
RAM
I/O ADAPTER
COMMUNICATIONS ADAPTER
1862
1872
1874
1886
1888
USER INTERFACE ADAPTER
DISPLAY ADAPTER
1867
1882
1876
1878

FIG. 11